

The Don Difference Series
Abdullah Eroglu

0:00-0:23 My research is from applied electromagnetics, and from component-level design to system level, and then integration of these components. So one of the things that we do is a research group called applied electromagnetics research group. We have, you know, basically established a laboratory, research laboratory, that we're using both for research and teaching.

0:24-0:42 In that laboratory, we're designing components that are basically components that you're using in your cell phones, or you know, television equipment, any electronic equipment that you're seeing like inductors, load capacitors, combiners...those type of, you know, electronic components.

0:43-1:14 And then what we do is after we design these with the tools that we have in the lab, basically the prototype. So we have, you know, a laser prototyping machine that enables us to prototype very fine thicknesses from anywhere, 2 mils to, you know, maybe 150 mils, with no problem using hard materials like ceramic-type materials. But at the same time, we can do also flexible materials.

1:15-1:42 Part of the...maybe challenge in this field for everyone is to be innovative. So then there are challenges so what we need to do is we need to come up with a method that is more efficient and most of the time we will have benefits that are not already available for users. For example, one of the designs, and we have a couple of patents actually that came out of this laboratory with my students.

1:43-2:03 So then we get a patent. Basically this patent is with students, me, involving the company. And our, you know idea is what can we do to make things simpler, more efficient, so that actually user will, you know have a cost effective system that they implement in their, you know entire system.

2:04-2:19 I think one of the great advantages we have is the small classroom environment because small classroom environment help us to engage student with one-to-one and that helps us to know our students better.

2:20-3:05 The way that I do most of the time is I use project based teaching so when I'm teaching like antenna course, micro engineering or a circuit design course, those types of courses, I actually assign projects. So I teach the theory

in the class, and then at a certain time during the course of the period, then I assign them the project that will enable them to use some of the analytical skills that they learned in the class. And at that time, the laboratory is a good tool for them. Students gain experience using those simulation tools. We have 3D, 2D electromagnetic simulators, non-linear circuit simulators, we can simulate you know parasitics of electronic circuit boards.

3:06-3:33 Because when they go outside, these companies, especially here, you know they are looking for engineers who are really equipped, who knows simulation, how to, you know use these simulation tools to design the components or the systems, and then they also are looking for engineers who know how to use the equipment. So I believe what you know we are doing in our department is hopefully helping that purpose.

3:34-3:39 (Music)